

a first DNA sequence encoding a replication defective retroviral vector, which comprises

- (a) a defective retroviral genome lacking functional *env* and functional *gag-pol* genes; and
- (b) the heterologous gene; and

a set of DNA sequences encoding packaging components *env* and *gag-pol*, wherein the DNA sequence encoding *env* is present on a separate construct than the DNA sequence encoding *gag-pol*;

- (ii) production of replication defective retroviral vector particles *in vivo* by the producer cell; and
- (iii) virus-mediated delivery of the heterologous gene to the target cell *in vivo*.

51. (AMENDED) A producer cell comprising:

a first DNA sequence encoding a replication defective retroviral vector, which comprises

- (i) a defective retroviral genome lacking functional *env* and functional *gag-pol* genes; and
- (ii) at least one heterologous gene; and

a set of DNA sequences encoding packaging components *env* and *gag-pol* wherein the DNA sequence encoding *env* is present on a separate construct than the DNA sequence encoding *gag-pol* which producer cell is a fresh cell from a subject.

58. (AMENDED) A method of making a replication defective retroviral vector in a subject, said vector comprising of at least one heterologous gene for delivery to a target cell within the subject, which comprises the step of expressing the set of DNA sequences within a producer cell according to claim 54 within the subject.

59. (AMENDED) A method for making a producer cell *in vivo* in a subject comprising a step of introducing a set of DNA sequences into a cell within the subject, said set of DNA sequences comprising:

a first DNA sequence encoding replication defective retroviral vector, which comprises

(i) a defective retroviral genome lacking functional *env* and functional *gag-pol* genes; and

(ii) at least one heterologous gene; and

a set of DNA sequences encoding packaging components *env* and *gag-pol* wherein the DNA sequence encoding *env* is present on a separate construct than the DNA sequence encoding *gag-pol*.

60. (AMENDED) A method or cell according to claim 51, wherein the heterologous gene comprises at least one therapeutically active gene.

61. (AMENDED) A method or cell according to claim 51, wherein said defective retroviral genome comprises any one or more of a primer binding site, integration sites and a packaging signal.